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A CASE STUDY OF THE HEALTH STATUS OF THE THREE DISTRICTS OF ANDAMAN AND NICOBAR ISLANDS A UNION TERRITORY OF INDIA

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Abstract

The objective of the study: To assess the burden of disease on the tribal and non-tribal population of Andaman and Nicobar Islands.

Methodology: The study focuses on the health status of the tribal and non-tribal population of the Islands and measures theirs out of pocket expenditure on health for 12 months in the year 2016. Primary data has been collected to conduct the study from all three districts of the islands using a random sampling method, and the same has been analyzed using a descriptive-analytical technique and multiple regression models.

Results: Standard multiple regression analysis provides a significant result. The result shows as Annual income increase, the out of pocket expenditure will increase by 0.727 rupees. When the age of the people increases, out of pocket expenditure will increase at a rate of 0.782, and as the quality of public health care services improves out of pocket expenditure will increase to 0.533, which is lower than the other two variables. The annual income age and quality of public health care all have a statistically significant impact on the outcome variable or out of pocket expenditure as the p-value is less than 0.05; therefore, the model is a good fit.

Conclusion: Most households in all three districts do not have proper toilet facility and latrine, which lead them to suffer communicable disease such as diarrhea. Also, the majority of them do not treat drinking water, which again causes their illness. The scattered and isolated location of the Andaman and Nicobar Islands and non-availability of the specialist doctors, surgeons, and well equipped curative health centers or hospitals are the crucial reasons for the huge out of pocket expenditure incurred by the islanders while taking treatment at the mainland.

Implication: This study provides insights on the health status of the tribal and non-tribal population of Andaman and Nicobar Islands. It will be helpful to develop better policies for improving the current healthcare scenario.

Originality and Novelty of the study: There was no earlier study done on the tribal of Andaman and Nicobar Islands.

Keywords: *Healthcare, Tribal Health, Out of Pocket Expenditure on Health, Health Care Delivery, Communicable, Multiple Regression.*

INTRODUCTION

Andaman and Nicobar Islands union territory of India lies in the Bay of Bengal. It is known throughout the country as 'Kalapani.':(official website of Andaman and Nicobar administration – http://www.and.nic.in/). The islands lie in a long and narrow broken chain approximately north-south sprawling like an arc. The Andaman group of islands and the Nicobar group of islands have entirely different populations and problems. It consists of about 527 islands, both small and large. The coastline of the island stretches for about 100 km. The Islands consist of two groups, the Andaman and Nicobar, and are mostly covered with dense rain forest. These two groups are separated by about 300 km. The area of the Islands is about 8249 square kilometers, of which 6408 sq. Km of the area is occupied by the Andaman group and 1841 sq km by the Nicobar groups of Islands. Of the total land area, 92 percent of the land is covered with rain forests, and of the 527 islands, only 38 islands are inhabited. The total population of the island is 380585, as per Population Census2011. The Nicobar Islands are still inhabited by primitive tribes and backward communities, and the rest of the land is barren. The island is divided into three districts South Andaman district North and Middle Andaman district and Nicobar district. Other than the tribes of Nicobar Islands, Jarawas, Onges, Sentinals, Shompen, and Great Andamanese are the other categories of tribes found in the Andaman and Nicobar Islands, which are inhabited in restricted areas. The majority of the population is engaged in agriculture for their livelihood. The hilly and plain agricultural lands of Andaman and Nicobar Islands are an essential source of income for the rural people of those areas. Seasonal vegetables oilseeds pulses pepper nutmeg cinnamon are some particular crops cultivated here (official website of Andaman and Nicobar administration – http://www.and.nic.in/).

The comparative isolation of the Andaman and Nicobar Islands from the mainland scattered landscape and intricate communication system proves the importance of the habitats of the islands to have a heavy reliance on government expenditure on different sectors like education and health.

OBJECTIVE OF THE STUDY

1. To examine the current health status at Andaman and Nicobar Islands
2. To assess the burden of disease of health care expenditure on the population of the Andaman and Nicobar Islands

LITERATURE REVIEW

Various studies have attempted to study, analyze the health care system, its structure, pattern, problems, and other issues. An attempt has been made here to review some studies on the health sector. These studies have been grouped under four categories to facilitate detailed discussion. *Bansal (1999)* discussed the scenario of health financing in India during 1985-1990 and opined that India spends only 1.5 percent of GDP on Health as against the recommended 5 percent by world health organization for equity and universal coverage *Farahani et al. (2009)* conducted a study on effects of state-level public health spending on mortality across all age groups, controlling for individual, household in India. This study used the second National Family Health Survey (NFHS-2) conducted in 1998-99. The analyses are based on a representative cross-sectional of 519,502 individuals from 91,573 households in 26 Indian states. A multilevel probit model is used to estimate the effects of health spending at the state-leveL. This study shows a 10 percent increase in public spending on Health in India decreases the average probability of death by about 2 percentage, with effects mainly on young, elderly, and women. This study also pointed out the major factors affecting mortality which are rural residence, household poverty, and access to toilet facilities. Sukhwinder K. Bagi (2007) used cross-country data to examine the relationship between public expenditure and education (health) indicators for countries representing different levels of human development. The empirical results suggest that for all countries irrespective of their level of human development, both public expenditure on education and gross domestic product per capita have a significant effect on improving education. Some of these relationships are nonlinear, implying large increases in public expenditure and income leading to faster improvements in education. Duggal (2007) critically reviewed the linkages of poverty with health care financing in all the states of India using evidence from the 52nd round of NSSO. His study emphasized the inadequacy of the public healthcare services which force the poor population of the country to borne high out of pocket expenditure on healthcare. The study measured the inter-linkage between poverty and health using a correlation matrix. The result of the correlation test showed that infant mortality rate and poverty are positively correlated which shows higher the poverty, higher will be the infant mortality rate. The study showed that those who can pay directly to attain the health facilities are already covered with insurance but the majority of the population, who are poor must incur high out of pocket expenditures which trap them to high debt. Bhatand Jain (2004) examined the relationship between income and healthcare expenditures at the state level. The study presented an analysis of public expenditures on health collected data from 14 major states on public health expenditure. The states included in the study are Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. The findings of the study suggest that state-level governments have the target of allocating only about 0.43 percent of SGDP to Health and medical care. This does not include the allocations received under central sponsored programs such as family welfare. The analysis also suggests that elasticity of health expenditure when SGDP changes in only 0.68 which suggests that for every one percent increase in the state per capita income the per capita public healthcare expenditure has increased by around 0.68 percent. Banerjee et al (2004) examined the health status of the rural population of Udaipur in collaboration of an NGO, Seva Mandir and Vidhya Bhavan having a chain of schools and colleges. They collected data between January 2002 and August 2003 from 100 hamlets of Udaipur district using a survey method to compare the public health care delivery and private health care delivery in that region. They analyzed the data using regression analysis and the result shows on average 45 % of the medical personnel were absent in subcentres and 46 % were absent in primary health centers and community health centers. Mitra (2006) analyzed the status of women among scheduled tribes in India. A further comparison was made among scheduled tribes, mainstream Hindus and scheduled caste population. The author used secondary data from the census of India and a literature review was carried to analyze the status of tribal women in India. The study revealed that in some of the northeastern regions where tribes constitute a majority in terms of the total population, tribal women seem to fare better in terms of literacy rate, sex-ratio, work patterns, and fertility rates. Subramanian et al. (2006) examine the patterns of health deprivation amongst indigenous populations in India, differential distribution of socio-economic resources accounts for indigenous and non-indigenous health inequalities, also the extent to which socio-economic well-being predicts health outcomes within indigenous populations. The result of the study presents evidence for excess mortality and tobacco and alcohol use in the indigenous populations in India. Berman et al (2010) review recent data on trends in government spending and various scenarios of central and state funding to assess the feasibility of achieving financial goals, implications of stated government health financing goals, and strategy of achieving these goals in the Indian federal system. This study also explores the early evidence on substitution, sustainability and effectiveness of increased government health spending in terms of NRHM. Acharya D et al(2011) attempted to provide evidence from the state of Tamil Nadu and Orissa on the distribution of benefits of public spending on healthcare across various socio and economic groups over the period 1995 to 2004. The study employs the data sets of the National Sample Surveys 52nd and 60th round (NSS) carried out in 1995-96 and 2004. The finding suggests that Overall, it must be mentioned that the public healthcare system in Tamil Nadu has improved much more significantly than that in Orissa. This includes a better drug distribution system, deployment of primary healthcare professionals, upgrading of PHCs, a higher allocation of budgets and better utilization of available funds and special attention to maternity services, namely provision of incentives for effective delivery of antenatal and postnatal services and for increasing institutional deliveries. Rao and Choudhary (2012) examined public health spending, the health care system and the health status of the population of India. The study analyzed recent reforms initiated by the government for increasing the allocation of health. Emphasis is given on NRHM implemented by the government, in 2005. The study is based on secondary data collected from different sources like WHO report

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2010, UNDP reports 2010, NSSO 2007 and literature review. It concludes that the NRHM could not perform as per expectation to increase health expenditure in poor-performing states due to the inability of central and states to attain fiscal space and also, states did not supervise and manage the program. Sudha S.R. (2016) analyzed the status and challenges of public health in India by comparing the health care facilities available in India and the United States based on different government reports of WHO, MOHFW, MRD. The study analyzed the issues in the Indian health care system- lack of health care access, unnecessary and extensive diagnostic tests, lack of education, gender inequality leading to an increasing burden of disease, government expenditure on health being low, and suggested measures to improve the health care.

The literature reviewed above, it can be seen that studies are mainly focused on the areas of public health expenditure, presented interlinkage between poverty and health care financing, analysis is made based on the health financing and share of center and state. A further effect of state-level financing on mortality rate has shown the inverse relationship between the two indicators as financing increases; the mortality rate showed a decrease. Studies also identified health care equity issues across states, rural areas, and urban areas. Few studies had focused on out of pocket expenditure and the burden of disease on the poor people. Also, studies on tribal health had shown deprivation amongst indigenous people in terms of health inequalities as well as socio-economic status.

METHODOLOGY

This study has been conducted in one of the union territories of India, the Andaman and Nicobar Islands, which is situated approximately 1200 kilometers from the mainland having connectivity through ship and plane. Researchers have not given these islands much preference though it is inhabited by primitive tribal, and the health status of the people residing in these groups of islands is essential to evaluate as it is a remote island. For conducting the research, both primary and secondary data are used. Random sampling technique has been used to collect primary data by selecting the villages and households from all three districts, namely, South Andaman district, Nicobar district, and North and Middle Andaman District.

Selection of Study Area, Sampling Design and Sample size

The field area is selected in two stages, i.e., Tehsils and Villages. All three districts, namely, South Andaman district, North and Middle Andaman District, and Nicobar district, are covered in this study. Both the South Andaman district and Nicobar District cover the non-tribal population, whereas the Nicobar district covers the Tribal population in the study.

In the first stage, all Tehsils in South Andaman district, namely, Port Blair, Ferrargunj, and Little Andaman Tehsils and all tehsils of North and Middle Andaman district, are selected namely, Mayabunder, Diglipur, and Rangat. In Nicobar District, only one Tehsil, namely, Car Nicobar, is selected for the field study due to the restriction of the government. In the second stage, the villages are selected randomly from the tehsils mentioned above. Three villages under Port Blair tehsil are covered for the field study are Port Blair, Bambooflat (a separate island), and Havelock. Whereas three villages from Ferrargunj tehsil, namely, Ferrargunj, Dundas Point, and Mannarghat, are selected for the study and from Little Andaman Tehsil, only one village is selected randomly, namely Hutbay.

The villages selected randomly from all three tehsils of North and Middle Andaman district. From Diglipur Tehsil, only Diglipur village is selected, whereas, Billiground and Mayabunder villages are selected from Mayabunder district and Rangat and Baratang villages are selected randomly from Rangat District which can be seen in figure 1.

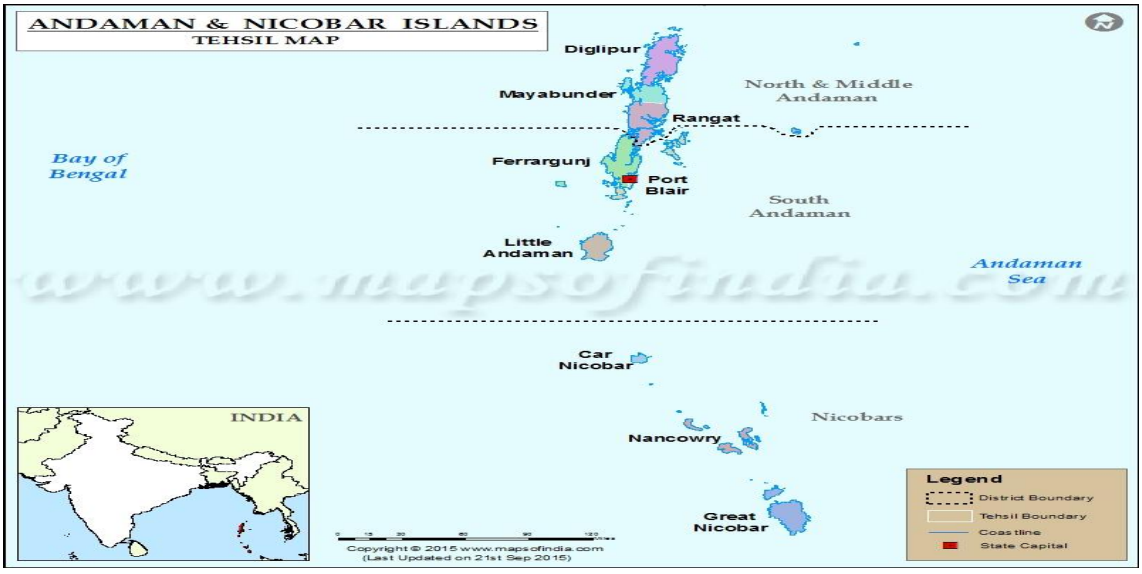

Figure 1: Map of Survey Location

Source: *maps of India.com*

In all the selected villages, households were chosen using the Random selection method based on the availability and willingness of the respondents. The survey covered a total of 100 households in every three districts of Andaman and Nicobar Islands. Thus, the total number of households covered in the survey is 300 of which from South Andaman District, in Port Blair Tehsil 77 number of the household was interviewed, 22 households from Ferrargunj tehsil and only 1 household from Little Andaman tehsil. Out of the 100 households of North and Middle districts, 24 households from Diglipur tehsil were interviewed, 35 households from Mayabunder Tehsil and 41 respondents from Rangat tehsil were interviewed. 100 households from Car Nicobar tehsil were interviewed using a structured questionnaire for the survey. The household survey was conducted simultaneously in the selected villages during February-May 2016. The schedule includes questions on their health status, health expenditure, the diseases suffered in the last 12 months of the study period, distance and time travel to reach the hospital, water, and sanitation facility.

Profile of the study area *– The profile of the study area has been taken from the census 2011 report.* (Census 2011)

As per details from Census 2011, Andaman and Nicobar Islands have a population of 3.81 Lakhs, an increase from figure of 3.56 Lakh in 2001 census. The total population of Andaman and Nicobar Islands, as per the 2011 census, is 380581, of which males and females are 202871 and 177710, respectively. In 2001 the total population was 356152, in which males were 192972 while females were 163180. Source

The total population growth in this decade was 6.86 percent while in previous decade it was 26.94 percent. The population of Andaman and Nicobar Islands forms 0.03 percent of India in 2011. In 2001 the figure was 0.03 percent.

Out of the total population of the Andaman and Nicobar Islands, 37.70 percent of people live in urban regions. The total figure of the population living in urban areas is 143488, of which 76584 are males and while remaining 66904 are females. The urban population in the last ten years has increased by 37.70 percent. Sex Ratio in urban regions of Andaman and Nicobar Islands was 874 females per 1000 males. For child (0-6) sex ratio, the figure for the urban region stood at 954 girls per 1000 boys.

Total children (0-6 age) living in urban areas of Andaman and Nicobar Islands were 14463. Of the total population in the urban region, 10.08 percentage were children (0-6). Average Literacy rate in Andaman and Nicobar Islands for Urban regions was 90.10 percent in which males were 93.11percentage literate while female literacy stood at 74.57percentage. Total literates in urban region of Andaman and Nicobar Islands were 116256.

Out of the total population of Andaman and Nicobar Islands state around 62.30 percent live in the villages of rural areas. In actual numbers, males and females were 126287 and 110806, respectively. The total population of rural areas of the Andaman and Nicobar Islands state was 237093. The population growth rate recorded for this decade (2001-2011) was 62.30percentage. In rural regions of Andaman and Nicobar Islands state female sex ratio per 1000 males was 877 while same for the child (0-6 age) was 976 girls per 1000 boys. In Andaman and Nicobar Islands, 26415 children (0-6) live in rural areas. Child population forms 11.14 percent of the total rural population. Also, in rural areas, the literacy rate for males and females stood at 88.53 percentage and 68.94 percentage. The average literacy rate in Andaman and Nicobar Islands for rural areas was 84.50 percent. Total literates in rural areas were 178025.

Out of the total persons employed under the agriculture sector, 59.01 percentage were employed under agriculture-related activities, 6.42 percentage under the Livestock activities, 7.10 percentage under forestry and logging, and 27.47 percentage under Fishing and Aqua Culture activity. In the total agriculture-related activities, Nicobar has the highest number of person concentration, followed by South Andaman and North & Middle Andaman.

Out of the 19 non-agriculture activities, major activities contributing maximum in terms of employment were retail trade 20.07 percentage, education 16.15percentage, accommodation, and food services 12.53 percentage, manufacturing 9.64 percentage, construction 6.32 percentage, other service activities 5.75 percentage, administrative & support service activities 5.19 percentage and human health and social work activity 4.88percentage.

Comparing the district wise employment figures by the activity, undermining and quarrying, North & Middle Andaman was having the highest concentration followed by South Andaman. Under Water supply, sewerage, waste management, and remediation services. South Andaman was having the highest percentage and followed by Nicobar and North & Middle Andaman.

From figure 2, primary income source of the respondents of all three districts is salary which is 69.8 percent in South Andaman, 58.3 percent in North and Middle Andaman and 48 percent in Nicobar district whereas in Nicobar 23 percent and 28 percent of the respondents has business income and agricultural income in comparison to North and Middle Andaman district which showed 15.7 percent as business income and 17.6 as income source from agricultural activities. (Source: Census 2011)

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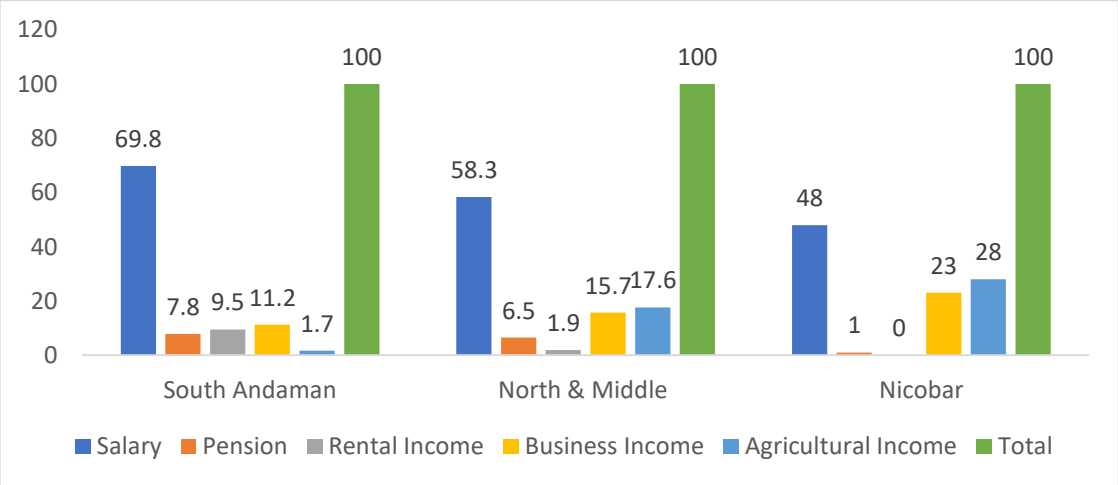

Figure 2: District wise Income Sources in Andaman and Nicobar Islands

Source: Primary data

Multiple Regression Analysis and its Result

To analyze the health status and out of pocket expenditure on health by the respondents, a multiple regression model is used for the South Andaman district as the majority has suffered the burden of disease in the South Andaman district by paying for their health services at private hospitals. The model is framed based on the extensive literature review done. SPSS software is used to analyze the multiple regression model.

World Health Organization to examine the determinants of health expenditure in developing and developed countries. From their finding, three main determinants of Out of Pocket health expenditure has been identified as Income Age and Public health services.

The multiple regression model considered in the study is:

$$Y=B_0 + B_1X_1 + B_2X_2 + B_3X_3 + e$$

Where Y= Dependent variable Out of pocket expenditure

B_0 = Constant or intercept in the model

B_1 B_2 andB_3 = Slope

X_1 = Annual Income of the household

X_2 = Age

X_3 = Quality of Public health care service

e = Error term

The dependent variable or outcome variable is considered as Health care expenditure, which is measured as their *out of pocket expenditure*, which includes expenditure incurred through their *monthly income borrowed money* and *money received from selling assets*. The independent variables or explanatory variables are measured through *annual income age and quality of public health care services*. It is important to note that to reduce errors in the model; all individuals who suffered from any disease are considered irrespective of taking treatment in Government hospitals or private hospitals. So even if the out of pocket expenditure is not witnessed from the responses of the household still to reduce error term 'e,' their responses are considered in the model.

Standard multiple regression analysis is performed to assess the ability of annual income age and quality of public health care to predict the out of pocket expenditure of the respondents from the study area.

Table 1: Model Summary of Multiple Regressions

R	R Square	Adjusted R Square
.537[a]	0.289	0.266

a. Predictors: (Constant) Quality of Public Health facility within islands Age of Head of Family-Annual income

b. Dependent Variable: Annual Out of Pocket Expenditure for Health

The above table shows the model summary where the R square value shows that this model explains 29 percent of the variance in the model. Preliminary analysis is performed to ensure that there is no violation of linearity or normality using the residual statistics.

Table 2: Anova Result of the Model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	93.149	3	31.050	12.989	.000[b]
	Residual	229.491	96	2.391		
	Total	322.640	99			

a. Dependent Variable: Annual Out of Pocket Expenditure for Health

b. Predictors: (Constant) Quality of Public Health facility within islands Age of Head of Family- Annual income

A significant regression equation is found (F (396) = 12.989 p< .000) with an R^2 of .289.

Table 3: Coefficients Result of the Model

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	(Constant)	-3.523	0.816		-4.317	0.000
	Annual income	0.727	0.201	0.312	3.609	0.000
	Age	0.782	0.253	0.266	3.087	0.003
	Quality of Public Health facility within islands	0.533	0.145	0.319	3.690	0.000

Dependent Variable: Annual Out of Pocket Expenditure for Health

Respondents predicted out of pocket expenditure is equal to -3.523 (OOP EXP) + 0.533 (Quality of Public health care) + 0.782 (Age) + 0.727 (Annual income). From the table, the annual income age and quality of public health care all have a statistically significant impact on the outcome variable or out of pocket expenditure as the p-value is less than 0.05; therefore, the model is a good fit.

$$\mathbf{Y= -3.523 + 0.727\ (AI) + 0.782\ (Age) + 0.533\ (Quality\ of\ public\ health\ care) + u_i}$$

DISCUSSION / ANALYSIS

In the comparison of the following figures of the health status and per capita health expenditure of all three districts is done using the descriptive statistical technique.

Health Status and Health Expenditure of the Population of Andaman and Nicobar Islands

Figure 3 shows the non-communicable disease suffered by the tribal and non-tribal population of Andaman and Nicobar Islands. Out of the total 300 respondents, 37 percent tribal and 48.5 percent non- tribal population suffered from fever, 1.2 percent non- tribal suffered from asthma whereas no tribal reported asthma in last 12 months.17.5 percent tribal reported suffering from stomach problems, 16 percent reported problems of sugar and blood pressure and 18.5 percent suffered from orthopedic problem. Sugar and blood pressure has been seen more in the non-tribal population due to their lifestyle.

Among the non-communicable disease suffered, 29 percent of the tribal population suffered the disease as incidence, which is less than 30 days, and 32 percent tribal population suffered a prevalence of more than 30 days. Whereas 71 percent of the non-tribal population suffered the non-communicable disease for less than 30 days, and 68 percent suffered for more than 30 days.

Figure 4 shows the communicable disease suffered by both the tribal and non-tribal populations. Out of the total population 29 percent tribal and 40 percent non-tribal population suffered from flu, 11 percent tribal and 8.5 percent non-tribal population reported suffering from malaria, 14 percent tribal population and 0.5 percent non-tribal population

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suffered from tuberculosis whereas 20 percent tribal and 31.5 percent non-tribal population reported not suffered any communicable disease during the survey period.

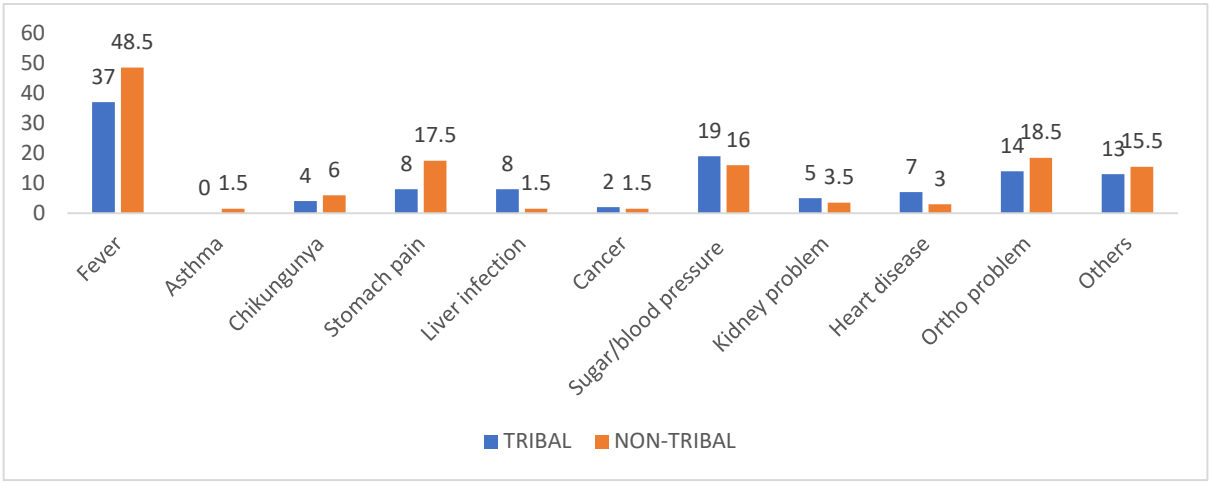

Figure 3: Non-communicable disease suffered by the tribal and non-tribal population at Andaman and Nicobar islands

Source: Primary data

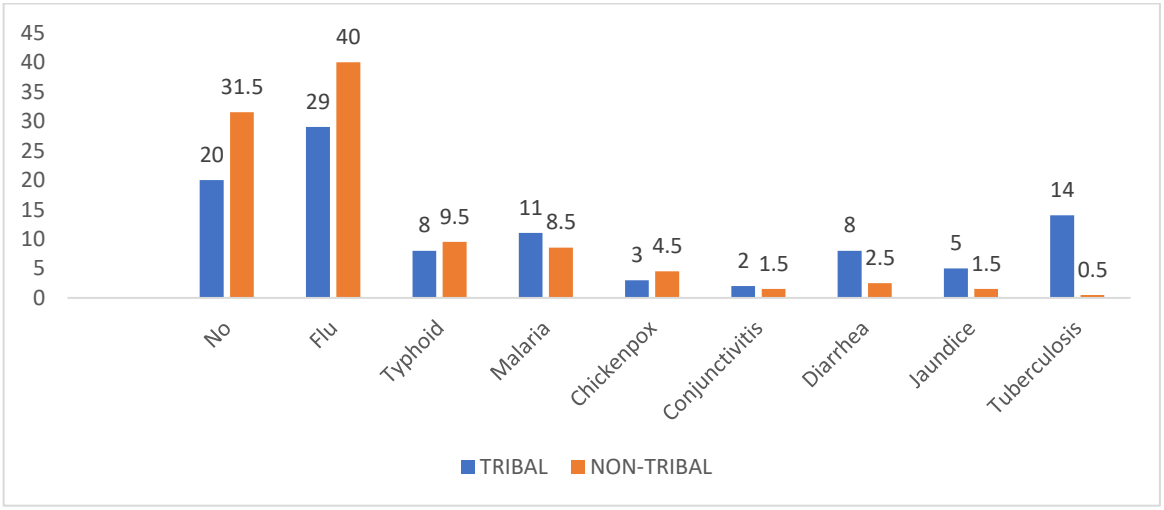

Figure 4: Communicable disease suffered by the tribal and non-tribal population at Andaman and Nicobar islands

Source: Primary data

80 percent of the tribal population suffered the disease for more than 30 days and 30 percent for less than 30 days. 70 percent suffered from the disease for less than 30 days and 20 percent for more than 30 days.

Figure 5 represents district-wise annual income and out of pocket expenditure incurred on Health at Andaman and Nicobar Islands in the last 12 months. The per capita income of South Andaman district is rupees 155940, rupees 78710for North and Middle Andaman district and rupees 54940 in Nicobar district, whereas the total per capita income in Andaman and Nicobar Islands is rupees 289590 rupees. The per capita out of pocket expenditure in South Andaman district is 162555, 78438 in North and Middle Andaman district, and 63119 in Nicobar district. The out of pocket expenditure is divided into inpatient and outpatient expenditure. The per capita outpatient expenditure is 7519, and per capita, inpatient expenditure is 41603. Whereas the total expenditure incurred at the mainland is 293025.

Further analysis on the sources of financing the medical expenses represents that 11 percent people from South Andaman district, 4 percent from North and Middle Andaman district and 15 percent from Nicobar district have either borrowed money with interest, without interest or have taken a loan which has to lead to the high burden of disease on them. People incur the out of pocket expenditure as they took treatment in private hospitals, so it is essential to know the reason behind not taking treatment at government hospitals. In South Andaman district, 23 percent people think there is no medical facility, 20 percent have lack of faith on the government hospital 19 percent faces long waiting so do not visit government hospitals 18 percent visits government hospital as they do not have the means to spend for treatment in private hospitals 1 percent did not visit any hospital as ailment was not considered severe and 11 percent gave other reason which shows the poor quality of government hospitals. In North and Middle Andaman district, 7 percent people think there is no medical facility 7 percent have lack of faith on the government hospital 3 percent faces long waiting so

do not visit government hospitals 83 percent visits government hospital as they do not have the means to spend for treatment in private hospitals these reasons show the poor quality of government hospitals. Whereas among the people of Nicobar district,1 3 percent people think there is no medical facility, 3 percent have lack of faith on the government hospital 3 percent faces long waiting so do not visit government hospitals 81 percent visits government hospital as they do not have the means to spend for treatment in private hospitals these reasons show the poor quality of government hospitals.

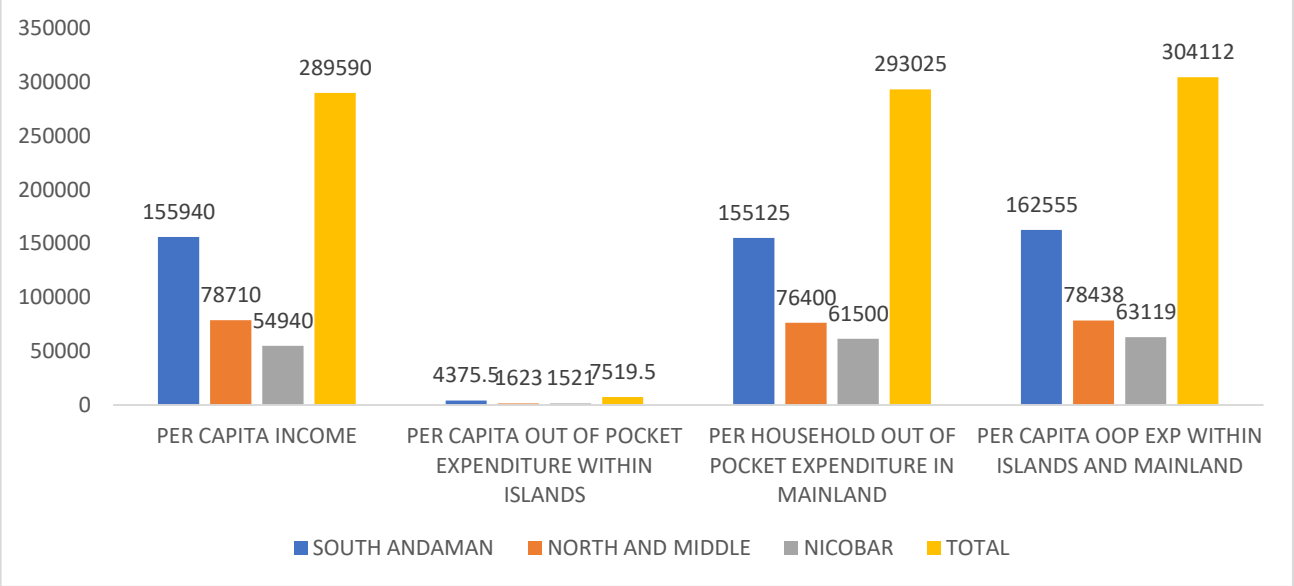

Figure 5: District-wise annual income and out of pocket expenditure on health

Source: Primary data

CONCLUSION

The scattered and isolated location of the Andaman and Nicobar Islands and non-availability of the specialist doctors, surgeons, and well equipped curative health centers or hospitals are the essential reasons for the huge out of pocket expenditure incurred by the islanders while taking treatment at the mainland. The Union Territory government should provide higher incentives to the specialist doctors to work in Andaman and Nicobar Islands on a permanent basis rather than engaging visiting doctors. Along with a high salary due to its isolated location, housing facility relocation facility, and incentives for the whole family should be given. The attractive package should be offered so that qualified specialist doctors and surgeons can relocate to the islands. Also, well equipped curative centers and hospitals should be established as there is a lack of medical equipment for testing and operating within islands. The government must share the burden of disease for the treatment taken at the mainland.

Most of the populations are lower middle class and poor in the Andaman and Nicobar Islands. The poverty is leading to the poor social condition of the people, which is the cause of communicable diseases. Most households in all three districts do not have proper toilet facility and latrine, which lead them to suffer communicable disease such as diarrhea. Also, the majority of them do not treat drinking water which again causes of their illness. The *Swatch Bharat Abhiyan* program (Campaign Clean India) launched in October 2014 aims at providing every household with access to sanitation by 2019, and the Union Territory government must follow the same path as other state and make this a successful program which will help in the occurrence of such communicable disease.

The UT government has stepped on the development of the Islands health care service by establishing a medical college within islands, namely Andaman and Nicobar Islands Institutes of Medical Sciences. It is a positive move for areas with low numbers of health professionals like Andaman and Nicobar Islands due to its location though efforts will be needed to get students to stay in these areas after their education. As mentioned above, by paying high incentives and other benefits, this can be possible. Efforts should also be made to improve working conditions and career prospects for health care professionals, especially those in rural communities. The central government should consider the wage differences across states and between the public and private sectors. It is evident that the private sector offers more salaries, which attract health care professionals. Therefore, the government must take into consideration these aspects and increase the benefit and salaries to them so that they stay in public health care services.

Lack of efficient management of public health care services is another vital setback for people to opt for a private hospital — the medicine prescribed by the government. Doctors are mostly not available within the government hospital, which forces the patient to incur out of pocket expenditure and buy the same from private medical stores or dispensaries. The majority of the people have incurred huge out of pocket expenditure in all three districts on high priced medicines

bought from private medical shops. So, it is essential that the medical board or the government should check on the supply chain of management of the drugs so that it is available in the government hospital dispensaries only, and people need not bear the burden of disease.

LIMITATION AND STUDY FORWARD

The current study is based on the tribal and non-tribal population of Andaman and Nicobar Islands, due to restriction and time constraint among the tribes, only Nicobar tribes are considered for the survey. The study has further scope to measure the health status of all other tribes inhabited in India, and a comparative study can be done.

This study provides clarity on the health status and health expenditure incurred by the islanders. The current study provides preliminary information on health care of the tribal community of Andaman and Nicobar Islands based on the disease suffered in the last 12 months in the year 2016 and the health care expenditure borne by them. It is essential to understand the health care scenario of the tribal population in India. From the result of the study, it can be analyzed that the health care scenario in the islands is not satisfactory, and it lacks proper facility; hence, the islander travels to the mainland for treatment, which increases their health expenditure. Further, the disaggregated impact of health expenditure on particular groups, not only women and children but also specifically for socially disadvantaged communities and isolated regions, is also a significant area for further research.

IMPLICATIONS

This study will help the policymakers understand the health care scenario in Andaman and Nicobar Islands and provide the best alternative to improve the conditions. The high out of pocket expenditure is the major concern as people have to travel to the mainland for major surgery due to lack of facility within the islands. Hence, based on the analysis of the current health care scenario and the suggestions provided earlier, this study will be useful in improving the health care services within the islands.

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